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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,840	02/12/2004	Ming-Lai Lai	56510US004 (P01,0391 01)	5900

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3M INNOVATIVE PROPERTIES COMPANY  
PO BOX 33427  
ST. PAUL, MN 55133-3427

EXAMINER
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WILSON, JOHN J

ART UNIT	PAPER NUMBER
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3732

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/777,840

Applicant(s)

LAI ET AL.

Examiner

John J. Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 50-102 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 50-102 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/19/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 50-57, 59-67 and 69 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are merely directed to performing calculations because positions are merely numerical values not representing a real world object and the broad language "generating output" can read on numerical results derived from the calculations.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 69 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In lines 2 and 3, "the undesired effects" lacks proper antecedent basis within the claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 50-53, 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chishti et al (6471511) in view of Chishti et al (5975893). Chishti (511) shows modeling a first position, column 5, lines 13-15, modeling a desired second position, column 5, line 23 and performing a finite element analysis there between, column 5, lines 19-25. Chishti (511) shows using intermediate positions, and therefore, does not show using only the original and final positions. Chishti (893) teaches that one or more of the intermediate appliances can be skipped, column 5, lines 1-7. It would be obvious to one of ordinary skill in the art to modify Chishti (511) to skip intermediate positions as shown by Chishti (893) in order to reduce costs. To not include any intermediate steps is an obvious matter of choice in the number of intermediate steps that are skipped to the skilled artisan. Further, the present disclosure teaches using intermediate steps, therefore, there is no criticality to only using the original and final positions. As to claim 51, to calculate from final to original positions is merely an obvious matter of choice in the starting point of known calculations to the skilled artisan. As to claim 52, see the use of appliances at column 2, lines 12-15 and column 5, line 17. As to claim 58, Chishti (511) teaches using materials and tissue. The specific tissue used is an obvious matter of choice in using known parameters that affect the forces on teeth. As to claim 59, Chishti (511) shows using a display, however, does not specifically state the information that is displayed. The specific information displayed is an obvious matter of choice in the information that it is desired to communicate.

Claims 54-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chishti et al (6471511) in view of Chishti et al (5975893) as applied to claim 50 above, and further in view of Chishti et al (2001/0002310). The above combination shows the steps as described above, however, does not show the use of vectors. Chishti (310) teaches using vectors, see paragraphs 162-165. It would be obvious to one of ordinary skill in the art to modify the above combination to include the use of vectors as shown by Chishti (310) in order to use known analysis techniques to obtain the desired results.

Claims 60, 61 and 66-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chishti et al (6471511) in view of Murakami (5616866). Chishti (511) shows modeling a first position, column 5, lines 13-15, modeling a desired second position, column 5, line 23 and performing a finite element analysis there between, column 5, lines 19-25. Chishti does not show using contact pairs during finite element analysis. Murakami teaches using contact points, column 5, lines 42-55. It would be obvious to one of ordinary skill in the art to modify Chishti to include using contact points in order to take into consideration all of the relevant forces that affect the movement of the teeth. Further, it is well known that forces are applied directly through contact points, therefore, any teaching of evaluating forces on teeth inherently suggests considering the areas where the forces are to be transferred. As to claim 61, to calculate from final to original positions is merely an obvious matter of choice in the starting point of known calculations to the skilled artisan. As to claim 68, Chishti (511) teaches using materials and tissue. The specific tissue used is an obvious matter of choice in using known parameters that affect the forces on teeth. As to claim 69, Chishti (511) shows using a display, however, does

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not specifically state the information that is displayed. The specific information displayed is an obvious matter of choice in the information that it is desired to communicate.

Claims 62-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chishti et al (6471511) in view of Murakami (5616866) as applied to claim 60 above, and further in view of Chishti et al (2001/0002310). The above combination shows the steps as described above, however, does not show the use of vectors. Chishti (310) teaches using vectors, see paragraphs 162-165. It would be obvious to one of ordinary skill in the art to modify the above combination to include the use of vectors as shown by Chishti (310) in order to use known analysis techniques to obtain the desired results. Chishti (511) shows using intermediate positions, and therefore, does not show using only the original and final positions. Chishti (893) teaches that one or more of the intermediate appliances can be skipped, column 5, lines 1-7. It would be obvious to one of ordinary skill in the art to modify Chishti (511) to skip intermediate positions as shown by Chishti (893) in order to reduce costs. To not include any intermediate steps is an obvious matter of choice in the number of intermediate steps that are skipped to the skilled artisan. Further, the present disclosure teaches using intermediate steps, therefore, there is no criticality to only using the original and final positions. As to claim 65, to calculate from final to original positions is merely an obvious matter of choice in the starting point of known calculations to the skilled artisan.

Claims 70-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chishti et al (6471511) in view of Chishti et al (2001/0002310). Chishti (511) shows modeling a first

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position, column 5, lines 13-15, modeling a desired second position, column 5, line 23 and performing a finite element analysis there between, column 5, lines 19-25. Chishti (511) does not show choosing from existing appliances. Chishti (310) teaches selecting from a library of attachments, paragraph [0141]. It would be obvious to one of ordinary skill in the art to modify Chishti (511) to include selected from stored appliances as shown by Chishti (310) in order to better select the desired appliances to apply the desired forces. Chishti (511) shows using a display, however, does not specifically state the elements displayed. The specific information displayed is an obvious matter of choice in the information that it is desired to communicate. To not choose appliances that have an undesired effect is an obvious matter of choice in the selection of the appliances to obtain the desired results. To use stresses and strains in a finite element calculation is well known and would be obvious to one of ordinary skill in the art. As to claims 74 and 85, to calculate from final to original or second to original positions is merely an obvious matter of choice in the starting point of known calculations to the skilled artisan. As to claim 75, the specific order of evaluating the forces on the different elements is an obvious matter of choice in the order of known steps to one of ordinary skill in the art.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

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provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 50-102 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,739,870. Although the conflicting claims are not identical, they are not patentably distinct from each other because to only use original and final positions is an obvious matter of choice in the start and finish positions used and/or in the terminology used to name the claimed positions. To use contact pairs is an obvious matter of choice in known steps of calculating relative positions in digital space. To use a subset of appliances is an obvious matter of choice in the ordering and grouping of the claimed appliances to the skilled artisan.

### *Drawings*

The drawings filed February 12, 2004 have been found to be acceptable by the examiner.

### *Conclusion*

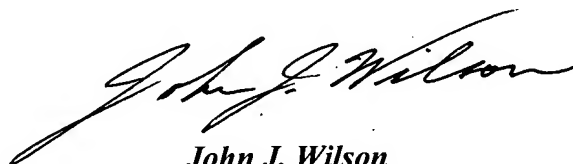
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Wilson whose telephone number is 571-272-4722). The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin P. Shaver, can be reached at 571-272-4720). The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**John J. Wilson**  
**Primary Examiner**  
**Art Unit 3732**

jjw  
May 5, 2006